WHAT IS CLAIMED IS:

1. An advanced power distribution system including an uninterruptible transfer switch coupled to at least two power sources and a load comprising:

a first switch having a first and second end, said first end coupled to a first power source, said second end coupled to said load;

a second switch having a first and second end, said first end coupled to a second power source, said second end coupled to said load;

a control module coupled to said first and second switch, said control module capable of actuating said first and second switch in order to select said power sources received by said load;

an inverter for providing power to said load when said control module actuates said first and second switches;

a first rectifier, having a first and second end, said first end coupled to said first end of said first switch, said second end of said rectifier coupled to said inverter;

a second rectifier, having a first and second end, said first end coupled to said first end of said second switch, said second end of said second rectifier coupled to said inverter; and

a harmonic cancellation unit comprising a transformer and at least one filter for attenuating system harmonics.

2. An advanced power distribution system as recited in claim 1, further including a remote monitoring unit coupled to said control module for receiving and transmitting system information and allowing remote control of at least two of the advanced power distribution system state variables.

3. An advanced power distribution system as recited in claim 1 wherein said transformer windings have a zig-zag configuration with a single secondary winding.

4. An advanced power distribution system as recited in claim 1 wherein said transformer windings have a delta-wye configuration with a single secondary winding.

5. An advanced power distribution system as recited in claim 1 wherein said filter comprises a common mode filter connected to the neutral bus of said transformer and a differential filter connected to the secondary winding of said transformer.

6. An advanced power distribution system including an uninterruptible transfer switch coupled to at least two power sources and a load comprising:

a first switch having a first and second end, said first end coupled to a first power source, said second end coupled to said load;

a second switch having a first and second end, said first end coupled to a second power source, said second end coupled to said load;

A control module coupled to said first and second switch, said control module capable of actuating said first and second switch in order to select power sources received by said load;

an inverter for providing power to said load when said control module actuates said first and second switches;

a first rectifier, having a first and second end, said first end coupled to said first end of said first switch, said second end of said rectifier coupled to said inverter;

a second rectifier, having a first and second end, said first end coupled to said first end of said second switch, said second end of said second rectifier coupled to said inverter; and

a harmonic cancellation unit for attenuating harmonic frequencies.

7. The advanced power system recited in claim 6 further including surge suppressors coupled to said first ends of said first and second switch.

8. An advanced power system including an uninterruptible transfer switch coupled to a first power source, a second power source and a load comprising:

a first switch means for transferring power to said load, said first switch means having a first and second end, said first end coupled to a first power source, said second end coupled to said load;

a second switch means for transferring power to said load, said second switch means having a first and second end, said first end coupled to a second power source, said second end coupled to said load;

control means for actuating said first and second switch in order to select the power source received by said load, said control means coupled to said first and second switch;

inverter means for providing power to said load when said control means actuates said first and second switches in order to alternate power source received by said load;

an inductor means for electrically isolating said sources and inverter means during switching of power from one power source to another, said inductor means coupled to said load, said first and second switch, and said inverter;

a first rectifier means for providing power to said inverter means, said rectifier having a first and second end, said first end coupled to said first end of said first switch means, said second end of said rectifier coupled to said inverter means;

a second rectifier means for providing power to said inverter means, said rectifier having a first and second end, said first end coupled to said first end of said second switch means, said second end of said second rectifier coupled to said inverter means;

a harmonic cancellation means coupled to said uninterruptible transfer switch for attenuating harmonic frequencies.

9. A method of maintaining power quality in an advanced power distribution system while switching power sources from a primary power source to an alternative power source without appreciable power loss to the load comprising:

monitoring power quality of a preferred power source and an alternate power source;

determining from a predefined set of power quality variables that the power quality from the primary source has degraded to an unacceptable level;

opening all switches that route the primary power source to the load;

supplying power to the load from the inverter at the time that the primary power source is disconnected from the load so that no appreciable power loss occurs on the load;

slewing amplitude and phase of power provided by the inverter to the load so that it substantially matches the amplitude and phase of alternative power source;

closing the switch that routes power from the alternative power source to the load;

taking the inverter off line so that the load receives power from the alternative power source without appreciable power loss on the load; and

attenuating harmonic frequencies in a transformer and filter to improve power quality provided to said load.

10. A harmonic cancellation unit for attenuating harmonic frequencies in a power distribution system comprising:

a transformer having a single secondary winding;

a filter coupled to said neutral bus of said transformer for attenuating at least the 3rd harmonic;

a filter coupled to said secondary winding of said transformer for attenuating at least one odd harmonic greater than the 3rd harmonic.